

- Separation of solids and liquid from sludge suspension using high efficiency, low cost agitated filter, passes **flow** of suspended **air** bubbles tangentially and turbulently past loosely-held filter membrane.

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NOVELTY - The filter membrane has a free downstream end. A stream of **air** bubbles driving **flow**, passes tangentially over the membrane surface.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for corresponding equipment. The aerator (10) introduces air (9) into the suspension (2). Rising air bubbles produced, drive the flow (11). Permeate (21) passing through the filter membrane is taken via the drain line (17) to a collection tank. Preferred features: The downstream end of the membrane, opposite the free end, is secured. It may be held at two opposite ends, transversely to the **flow** direction. **Air** bubble-driven **flow** is superimposed on an independent vertical flow of the suspension. Permeate is withdrawn at intervals, varying the intensity of the flow driven by bubbles. They produce turbulent flow at the membrane surface. Permeate withdrawal is driven by reduced pressure, 0.1-0.6 bar, in the permeate collection tank. Variants of the withdrawal method are described. The vertical flow is recirculated.

USE - To separate solids and liquid from a suspension.

ADVANTAGE - Efficient use is made of the air supplied. Capital cost is reduced in comparison with cited prior art. The membranes can be obtained cheaply in large sizes, and require no all-round support, being suspended dynamically. It is simple to build-in a membrane separator of this type, into an existing system. Tangential, turbulent flow, combined with continuous membrane agitation, promote a powerful **cleaning** action preventing **membrane** blockage.

DESCRIPTION OF DRAWING(S) - A vertical cross section is taken through the plant, further variants and details are seen in the disclosure.

suspension 2

air 9

aerator 10

flow 11

drain line 17

permeate 21

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